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10/736,768	12/16/2003	Mathilde Benveniste	AVA04-08	5715

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EXAMINER	
AHMED, SALMAN	

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/736,768	BENVENISTE, MATHILDE	
	Examiner	Art Unit	
	SALMAN AHMED	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/27/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/16/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-20 are pending.

Claims 1-20 are rejected.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fulthorp et al. (US PAT 5737330, hereinafter Fulthorp) in view of Shorey et al. (US PAT 6807159, hereinafter Shorey).

In regards to claim 1, Fulthorp teaches *a method comprising: (a) receiving a temporal period associated with a schedule* (column 2 lines 61-63, The poll request signal from the remote radio unit contain data indicative of a communications interval (i.e. temporal period) for each of the remote radio units); *(b) determining, based on one or more existing schedules, whether temporal period can be accommodated* (column 12 lines 45-50, the base station 2 must determine which remote units 6 are to be polled in the current cycle. Some remote units may have requested a long polling interval while other remote units may have requested a short polling interval. Thus, for a given polling cycle, not all remote units 6 will be polled by the base station 2); *and (c) when temporal period can be accommodated, (i) determining a temporal offset for wake-up schedule*

(column 10 lines 6-10, the base station 2 will then schedule the remote unit 6 in its TDMA polling interval (i.e. implicitly the wake-up schedule) as often as required (i.e. determining a temporal offset) to meet the service level requested by the remote unit), *and (ii) transmitting to device a positive notice comprising temporal offset* (column 2 lines 63-67, the base station periodically transmits the poll signal (i.e. positive notice) and the poll sequence (i.e. temporal offset) is altered in each of the periodically transmitted poll signals in response to the communication data interval for each of the plurality of remote radio units).

In regards to claim 12, Fulthorp teaches *a method comprising: (a) transmitting a temporal period* (column 2 lines 61-63, The poll request signal from the remote radio unit contain data indicative of a communications interval (i.e. temporal period) for each of the remote radio units); *(b) receiving a temporal offset in response to (a)* (column 2 lines 63-67, the base station periodically transmits the poll signal (i.e. positive notice) and the poll sequence (i.e. temporal offset) is altered in each of the periodically transmitted poll signals in response to the communication data interval for each of the plurality of remote radio units); *(c) entering inactive mode; (d) waking up in accordance with temporal period and temporal offset* (column 2 lines 34-43, The poll signal includes a poll response sequence (i.e. temporal offset) indicative of a particular time frame (i.e. temporal period) in which each of the remote radio units will respond to the poll signal (i.e. implicitly the wake-up schedule)); *and (e) receiving a first signal when awake* (column 2 lines 34-43, a poll detection unit in each of the remote radio units detects the poll signal (i.e. first signal). A control unit in each of the remote units controls

transmission of the data in the particular time frame such that each of the remote radio units transmits data in the second mode in the time frame corresponding to the response sequence (i.e. implicitly the wake-up schedule) in the detected poll signal).

In regards to claim 17, Fulthorp teaches *a method comprising: (a) transmitting a temporal period and a suggested temporal offset* (column 2 lines 34-43, The poll signal includes a poll response sequence (i.e. temporal offset) indicative of a particular time frame (i.e. temporal period) in which each of the remote radio units will respond to the poll signal); *(b) receiving a temporal offset based on at least one of: (i) suggested temporal offset* (column 2 lines 64-67, the base station periodically transmits the poll signal and the poll sequence (i.e. temporal offset) is altered in each of the periodically transmitted poll signals in response to the communication data interval (i.e. suggested temporal offset) for each of the plurality of remote radio units), *and (ii) one or more existing schedules* (column 12 lines 39-45, the polling table 46 is checked at decision 168 to see if any remote unit 6 needs to be polled. If any remote unit 6 needs to be polled, the result of decision 168 is YES and the base station 2 initiates the polling process); *(d) waking up in accordance with temporal period and temporal offset; and (e) transmitting a first signal when awake* (column 2 lines 37-43, a poll detection unit in each of the remote radio units detects the poll signal. A control unit in each of the remote units controls transmission of the data (i.e. transmitting a first signal) in the particular time frame (i.e. temporal period) such that each of the remote radio units transmits data in the second mode (i.e. implicitly the wake-up mode) in the time frame

corresponding to the response sequence (i.e. temporal offset) in the detected poll signal).

In regards to claim 7 Fulthorp teaches *refraining from transmitting to enable one or more stations to transmit a frame* (column 9 lines 6-15, Each remote unit 6 will transmit its response repeatedly within the response window, but will not key (turn on) its transmitter 32 (see FIG. 3B) until its particular slot time. For example, the first remote unit 6 keys its transmitter 32 in time slot 1. The second remote unit 6 transmits its response in time slot 1 with its transmitter 32 off, then transmits its response again in time slot 2 with its transmitter turned on, and so forth. Thus, each remote unit 6 continuously transmits its data in each time slot to maintain the proper timing relationship with the other remote units).

In regards to claims 1, 7, 12 and 17 Fulthorp does not explicitly teach *power-save node transmission period related to wake-up period.*

Shorey in the same field of endeavor teaches *power-save mode transmission period related to wake-up period* (column 1 lines 27-32 and column 2 lines 53-59, The radio can operate in three modes: standby, receive and transmit. We call the mode in which the devices can receive and transmit data as active mode (wake-up period). In general, the radio consumes more power in the transmit mode than in the receive mode, and consumes the least power in the standby mode. The invention provides a system for managing power consumption in a master driven wireless network comprising means for optimizing power consumption while maintaining quality of service

requirements for end-to-end packet delay, by adjusting the polling interval for each slave in low power mode based on the incoming traffic at the slave).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fulthorp's system/method by incorporating the power-save mode related to wake-up period in a device as suggested by Shorey. The motivation is that (as suggested by Shorey, column 1 lines 12-15) Mobile devices have limited energy for computing and communications because of the limited battery lifetimes and conserving battery power in mobile devices is an important consideration in designing protocols for networks with mobile nodes to make the network reliable and efficient. Such methods provide a system for managing power consumption in a wireless network for optimizing power consumption while maintaining quality of service requirements for end-to-end packet delay, by adjusting the polling interval for each device in low power mode based on the incoming traffic (column 2 lines 53-59).

In regards to claims 3 and 5 Fulthorp teaches selecting a value for temporal offset so that the rate of collisions between wake-up schedule and one or more existing schedules is below a threshold (column 10 lines 26-30, Any other remote units 6 that receive the poll, but do not see their ID in the poll list, hold off (i.e. temporal offset) their CSMA transmissions long enough (i.e. threshold) for all of the poll responses to be completed, thereby eliminating any chance for collision).

In regards to claim 4 Fulthorp teaches receiving a suggested temporal offset associated with wake-up schedule (column 9 lines 40-43, In response to the poll signal

600, the remote units 6 transmit their data in a time sequenced series (temporal offset) of response frames 608).

In regards to claim 6 Fulthorp teaches transmitting a signal to device in accordance with temporal period and temporal offset (column 2 lines 63-67, the base station periodically (i.e. temporal period) transmits the poll signal and the poll sequence (i.e. temporal offset) is altered in each of the periodically transmitted poll signals in response to the communication data interval for each of the plurality of remote radio units).

In regards to claim 8 Fulthorp teaches signal comprises at least one of: a poll, and a plurality of frames (column 9 lines 6-15, Each remote unit 6 will transmit its response repeatedly within the response window, but will not key (turn on) its transmitter 32 (see FIG. 3B) until its particular slot time. For example, the first remote unit 6 keys its transmitter 32 in time slot 1. The second remote unit 6 transmits its response in time slot 1 with its transmitter 32 off, then transmits its response again in time slot 2 with its transmitter turned on, and so forth. Thus, each remote unit 6 continuously transmits its data (a plurality of frames) in each time slot to maintain the proper timing relationship with the other remote units).

In regards to claim 9 Fulthorp teaches receiving a signal from device in accordance with temporal period and temporal offset (column 2 lines 35-43, a poll detection unit in each of the remote radio units detects the poll signal. A control unit in each of the remote units controls transmission of the data in the particular time frame (i.e. temporal period) such that each of the remote radio units transmits data in the

second mode in the time frame corresponding to the response sequence (i.e. temporal offset) in the detected poll signal).

In regards to claims 10 and 18 Fulthorp teaches signal comprises a plurality of frames (column 3 lines 25-27).

In regards to claims 11 and 16 Fulthorp teaches receiving and transmitting are via shared-communications channel (column 9 lines 6-15, Each remote unit 6 will transmit its response repeatedly within the response window, but will not key (turn on) its transmitter 32 (see FIG. 3B) until its particular slot time. For example, the first remote unit 6 keys its transmitter 32 in time slot 1. The second remote unit 6 transmits its response in time slot 1 with its transmitter 32 off, then transmits its response again in time slot 2 with its transmitter turned on, and so forth. Thus, each remote unit 6 continuously transmits its data (a plurality of frames) in each time slot to maintain the proper timing relationship with the other remote units).

In regards to claim 13 Fulthorp teaches first signal comprises a poll (column 2 lines 63-67, the base station periodically (i.e. temporal period) transmits the poll signal and the poll sequence (i.e. temporal offset) is altered in each of the periodically transmitted poll signals in response to the communication data interval for each of the plurality of remote radio units).

In regards to claim 19 Fulthorp teaches receiving a second signal when awake (column 14 lines 29-47).

In regards to claims 14 and 20 Fulthorp teaches first/second signal comprises a plurality of downlink frames (Figure 5B element 130 and subsequently 138).

In regards to claim 15 Fulthorp teaches transmitting a second signal when awake (column 9 lines 6-15, Each remote unit 6 will transmit its response repeatedly within the response window, but will not key (turn on) its transmitter 32 (see FIG. 3B) until its particular slot time. For example, the first remote unit 6 keys its transmitter 32 in time slot 1. The second remote unit 6 transmits its response in time slot 1 with its transmitter 32 off, then transmits its response again (second signal) in time slot 2 with its transmitter turned on, and so forth. Thus, each remote unit 6 continuously transmits its data (a plurality of frames) in each time slot to maintain the proper timing relationship with the other remote units)

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fulthorp and Shorey as applied to claim 1 above and further in view of Massie et al. (US PAT 7068992, hereinafter Massie).

In regards to claim 2 Fulthorp and Shorey teach polling method as described in the rejections of claim 1 above.

Fulthorp and Shorey do not explicitly teach when scheduling cannot be accommodated negative notice is being sent.

Massie in the same field of endeavor teaches sending NACK if scheduling is not accommodated (column 6 lines 10-24).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fulthorp and Shorey's system/method by incorporating the steps of negative notice being sent when scheduling cannot be accommodated as

suggested by Massie. The motivation is that by sending NACK message a server can notify a user of its inability to accommodate user's request so that user can take subsequent action like re-try later; thus preventing unnecessary usage of user resources during inactivity period.

Response to Arguments

4. Applicant's arguments, see pages 6-8 of the Remarks section, filed 5/27/2008, with respect to the rejections of the claims have been fully considered and are not persuasive.

Applicant argues (page 6 paragraph 2) that Fulthorp does not disclose or suggest *estimating a first temporal offset for a wake-up schedule*. However, Examiner respectfully disagrees with the assertion. Fulthrop teaches *a method comprising: (a) receiving a temporal period associated with a schedule* (column 2 lines 61-63, The poll request signal from the remote radio unit contain data indicative of a communications interval (i.e. temporal period) for each of the remote radio units); *(b) determining, based on one or more existing schedules, whether temporal period can be accommodated* (column 12 lines 45-50, the base station 2 must determine which remote units 6 are to be polled in the current cycle. Some remote units may have requested a long polling interval while other remote units may have requested a short polling interval. Thus, for a given polling cycle, not all remote units 6 will be polled by the base station 2); *and (c) when temporal period can be accommodated, (i) determining a temporal offset for wake-up schedule* (column 10 lines 6-10, the base station 2 will then schedule the

remote unit 6 in its TDMA polling interval (i.e. implicitly the wake-up schedule) as often as required (i.e. determining a temporal offset) to meet the service level requested by the remote unit), and (ii) transmitting to device a positive notice comprising temporal offset (column 2 lines 63-67, the base station periodically transmits the poll signal (i.e. positive notice) and the poll sequence (i.e. temporal offset) is altered in each of the periodically transmitted poll signals in response to the communication data interval for each of the plurality of remote radio units). Fulthorp does not explicitly teach power-save node transmission period related to wake-up period. Shorey in the same field of endeavor teaches power-save mode transmission period related to wake-up period (column 1 lines 27-32 and column 2 lines 53-59, The radio can operate in three modes: standby, receive and transmit. We call the mode in which the devices can receive and transmit data as active mode (wake-up period). In general, the radio consumes more power in the transmit mode than in the receive mode, and consumes the least power in the standby mode. The invention provides a system for managing power consumption in a master driven wireless network comprising means for optimizing power consumption while maintaining quality of service requirements for end-to-end packet delay, by adjusting the polling interval for each slave in low power mode based on the incoming traffic at the slave). As such, Fulthorp in combination with Shorey teach the limitation *estimating a first temporal offset for a wake-up schedule.* Examiner adds in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As such, Examiner respectfully disagrees with the Applicant's assertion that Fulthorp fails to disclose the use of a temporal offset with a wake up schedule. To further clarify, Examiner points out that Fulthorp teaches (column 2 lines 61-62) the poll request signal from the remote radio unit may contain data indicative of a communications interval for each of the remote radio units. Fulthrop further teaches (column 7 lines 28-31) base station 2 in cell C5 might poll at a 30 second interval starting at offset 10 seconds in each 30 second interval with a duration of 5 seconds. Another base station 2 in cell C6 could then poll at a 30 second interval starting at offset 0 seconds in each 30 second interval with a duration of 5 seconds. Fulthrop further teaches (column 10 lines 7-9) the base station 2 will schedule (temporal offset) the remote unit 6 in its TDMA polling interval as often as required to meet the service level requested by the remote unit. Fulthorp further teaches (column 12 lines 39-50) the polling table is checked to see if any remote unit needs to be polled. It should be noted that each remote unit has previously requested it's own polling interval. If any remote unit needs to be polled, the base station initiates the polling process. The base station must determine which remote units are to be polled in the current cycle (temporal offset). Some remote units may have requested a long polling interval while other remote units may have requested a short polling interval. Again, Examiner adds in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claims 12 and 17 as well as all the dependent claims are not allowable for the same reasons cited above.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SALMAN AHMED whose telephone number is (571)272-8307. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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